HDMI1.3 to 3GSDI Scaler

EXT-HDMI1.3-2-3GSDIS

User's Manual

www.gefen.com

ASKING FOR ASSISTANCE

Technical Support:

Telephone	(818) 772-9100
	(800) 545-6900
Fax	(818) 772-9120

Technical Support Hours:
8:00 AM to 5:00 PM Monday thru Friday PST

Write To:

Gefen, LLC
c/o Customer Service
20600 Nordhoff St
Chatsworth, CA 91311

www.gefen.com
support@gefen.com

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INTRODUCTION

The Gefen HDMI1.3 to 3GSDI Scaler is a recent addition to our HDSDI conversion line incorporating HDMI conversion scaled to your choice of SD/HDSDI/3GSDI Single / Dual Link modes or 3G-SDI level A/B. Resolutions of up to 1080p are supported over the HDSDI link for those that want true “High Definition”. Multichannel HDMI embedded audio is supported. Performance has been greatly enhanced due to Gennum’s VXP Scaler onboard, allowing for new features such as Genlock, Color & Gamma Correction, Noise Reduction, Detail Enhancement, Aspect Ratio Selection, Pattern Generator Mode, & Multiple Language Menu Support. The Bottom Line? More performance at a lower cost.

HOW IT WORKS

HDMI devices are connected to the HDMI input and SDI devices are connected to the SDI output. When the source, display and the Scaler are powered up and connected, video signals are converted to the proper format.

PACKAGE INCLUDES

The HDM1.3 to 3GSDI Scaler package consists of:

(1) HDMI1.3 to 3GSDI Scaler
(1) 5V DC Power Supply
(1) RMT-8HDS-IR Remote Control
(1) 6 ft HDMI Cable (M-M)
(1) Set of Rack Ears
(1) User’s Manual

FEATURES

- 10-bit resolution for greater precision and dynamic range
- Proprietary motion adaptive video de-interlacing with edge interpolation for SD/HD formats
- Supports 8 channels of SDI audio
- Advanced noise reduction and detail enhancement
- Fully integrated sprite based multi-plane OSD controller
- Frame rate conversion to / from any refresh rate
- Pattern mode w/ color bars & coarse hatch patterns
- Color correction
- Noise Reduction
- Detail Enhancement
- Brightness Adjustment
- Gamma Selection
- Aspect Ratio Select
- French/English Menu Set
- USB-upgradeable firmware
- Remote control via IR remote control and/or RS232 serial port
- 3GSDI level A/B (4:2:2 color space only)

Front Panel

Infrared Eye

3G-SDI Indicator LED

Power Indicator LED

Back Panel

RS-232 Control Port

5V Locking Power Jack

USB Input Port

Genlock Ref. Signal Input

Coax Digital Audio Output

HDMI Source Input

3G-SDI Output

MENU FUNCTIONS

Aspect:

-Full Screen: Stretches input to fill the Monitor

-Letter / Pillar Box: Sets the aspect ratio to fit a letter or pillar box format

-Panoramic: Panoramic Zoom feature

-Extract: Feature to magnify the signal

-Exact Size: Adjusts signal magnification.

-Horizontal / Vertical Position: Moves magnified signal Up/Down

-Through: Feature to crop the signal

- H/V Size: Horizontally and Vertically contracts or expands the cropping viewport.

- H/V Position: Moves the signal Left/Right or Up/Down inside the cropping viewport.

Layout:

- Size and Position:

- H/V Size: Adjusts Horizontal or Vertical resolution.

- H/V Position: Moves image Horizontally or Vertically.

Picture:

-Image Color:

-Contrast: Individually adjusts the contrast for red, green and blue

-Brightness: Individually adjusts the brightness for red, green and blue

-Black Level: Adjusts black levels between 0 (default) and 100

-Gamma Correction:

-Default: Sets Default Gamma settings.

-sRGB

-Custom: Enables Gamma Coefficient menu item as the current Gamma coefficient

-Gamma Coefficient (0 .3- 3.0); default set to a value of 1.0.

-User Table

-Detail Enhancement:

-Digital Detail Enhancement enhances the signal

-Noise Threshold: Adjusts the amount of noise allowed in detail enhancement

-Noise Reduction: Digitally reduces signal noise

-Motion Threshold

Input:

- Input Video Format & Input Graphic Format:

- Auto Detect by default. Signal can be forced to a specific High-definition resolution. (Please see Supported Input / Output Resolutions for more info.)

- Clean Aperture:

- Horizontal and Vertical Size: Stretch image Left/Right or Up/Down

- Horiz. and Vertical Position : Move image in viewport Left/Right or Up/Down

Input:, continued:

- Remote Channel:

  Changes the IR code of the HDMI to 3GSDI Scaler to one of 4 different settings between 0 and 3. When the remote channel is changed, DIP switches in the 8-button remote must be changed to the corresponding codes in order to continue operating the Scaler. (Please see the Installation page for the RMT-8HDS-IR remote control for more information).

- Non-Standard Sync: Allows the box to sync to non-standard video formats.
- Film Mode (Enable, Disable)

Output:

-Video Output Format: Select the desired HD output resolution. (Please see Supported Input/Output Resolutions for more information).

- Audio Output Format: The built-in S/PDIF coaxial connector outputs the first 2 channels of Audio Group 1 PCM bitstream (8 channels) and compressed audio formats using the first 2 ch. of Audio Group 1.

-Link Configuration: When using dual link SDI/HDSDI input, allows you to select either YCbPr or RGB. When using 3GSDI, selects A or B (4:2:2 only).

-Genlock:

-Off: Freerun mode.
-Video Input: Locks the input clock in sync with the output clock.
-Reference Input: Locks the output clock with the Reference clock.

Patterns:

-Color Bars: Displays color bar video pattern.
-Cross Hatch: Displays cross-hatch video pattern.

General:

-Language: Sets the menu to display English or French text.
-Save Config
-Restore Default Config
-Remote Channel
-FPGA Version
-Firmware Version
-Configuration Version

Note on Genlock Operations: When the refresh rate of the source device connected to the genlock input and the refresh rate of the 3G-SDI output device are equal or a multiple of the output device's refresh rate, the Scaler will automatically genlock them. (For example, an output refresh rate of 60Hz will be genlocked with input refresh rates of 30Hz, 60Hz and 50Hz but not with 59.94Hz.) Genlock synchronization is performed each time the input and output devices are changed. Recognized Reference input formats are: 1080i/50/59/60, 720p50/59/60, 480i(NTSC), and 576i(PAL).

SUPPORTED INPUT RESOLUTIONS

Note: Since the scaler processor (VXP) is 10-bit, all 12-bit input formats will be truncated to 10 bits.

Rate	Type	Resolution / Frame Rate	Color Space	Bit Depth	Sup-ported
SD	*Video*	**480i & 480p(59.94)** **576i & 576p(50)**	**YCbCr 4:2:2** **YCbCr 4:4:4** **RGB 4:4:4**	**8/10**	**Yes**
HD	*Video*	**720p(23.97/24/25/29.97/30/50/59.94/60)** **1080i(50/50M/59.94/60)** **1035i(59.94/60)** **1080p(23.98/24/25/29.97/30)** **1080p(50/50M/59.94/60)** **2K(23.97/24)**	**YCbCr 4:2:2**	**8/10/12**	**Yes**
			YCbCr 4:4:4 **RGB 4:4:4**	**8**	**Yes**
			YCbCr 4:4:4 **RGB 4:4:4**	**10/12** **(Deep Color)**	**Yes**
n/a	Graph-ics	**640x350(85)** **640x400(85)** **640x480(60)** **640x480(75)** **640x480(85)** **800x600(60)** **800x600(75)** **1024x768(60)** **1024x768(75)** **1024x768(85)** **1280x854** **1152x864(75)** **1280x768(60)** **1280x960(60)** **1280x960(85)** **1280x1024(60)** **1280x1024(75)** **1280x1024(85)** **1360x768(60)** **1366x768(60)** **1366x923(50)** **1440x900(60)** **1440x1080(60)** **1600x1024** **1600x1200(60)** **1680x1050(60)** **1920x1200(60)** **2048x1080**	**YCbCr 4:2:2**	**8/10/12**	**Yes**
			YCbCr 4:4:4 **RGB 4:4:4**	**8**	**Yes**
			YCbCr 4:4:4 **RGB 4:4:4**	**10/12** **(Deep Color)**	**Yes**

SUPPORTED OUTPUT RESOLUTIONS

SDI Output Formats Supported are shown in the following table:

Rate	Type	Resolution / Frame Rate	Color pace	Bit Depth	Support
SD	**Video**	**480i & 480p (59.94)** **576i & 576p (50)**	**YCbCr 4:2:2**	**8/10**	**Yes**
Dual Link Interlaced SD	**Video**	**480p** **576p**	**YCbCr 4:2:2**	**8/10**	**Yes**
HD	**Video**	**720p(23.97/24/25/29.97/30/50 /59.94/60)** **1080i(50/50M/59.94/60)** **1035i (59.94/60)** **1080p (23.98/24/25/29.97/30)** **1080sf(23.98/24/25/29.97/30)** **2K p(23.97/24)** **2K sf(23.97/24)**	**YCbCr 4:2:2**	**8/10**	**Yes**
HD Dual Link HD 4:4:4	**Video**	**720p(23.97/24/25/29.97/30/50 /59.94/60)** **1080i(50/50M/59.94/60)** **1035i (59.94/60)** **1080p (23.98/24/25/29.97/30)** **1080sf(23.98/24/25/29.97/30)** **2K p(23.97/24)** **2K sf(23.97/24)**	**YCbCr 4:4:4** **RGB 4:4:4**	**8/10**	**Yes**
Dual Link 1080p	**Video**	**1080p (50/50M/59.94/60)**	**YCbCr 4:2:2**	**8/10**	**Yes**
3G Level A	**Video**	**1080p (50/50M/59.94/60)**	**YCbCr 4:2:2**	**8/10**	**Yes**
3G Level B	**Video**	**1080p (50/50M/59.94/60)**	**YCbCr 4:2:2**	**8/10**	**Yes**

OPERATION NOTES

Upon power up, the HDMI to HDSDI Scaler will automatically detect the input format of the input. The unit is controlled using the included remote.

The following are the buttons for the RMT-8HDS-IR:

- UP (Navigates cursor up)
- LEFT (Navigates cursor left)
- Enter (Accept Operation / Return to Menu)
- RIGHT (Navigates cursor right)
- DOWN (Navigates cursor down)
- MENU (Show / Hide Onscreen Display)
- OUTPUT (Change Output Format)
- SOURCE (Non operational)

To bring up the onscreen menu, press the MENU button. Navigation is done using Buttons up, left, right, and down; Push the Enter button to accept the cursor focus.

Pressing the Output button cycles through the following output modes:
480i - 576i - 720p - 1080i

Other functions and output modes can be accessed through the onscreen menu.
To Restore I/O settings, simply recycle power on the Scaler

*Note: Both dip switches under the remote battery cover must initially be in the OFF position to communicate with the Scaler.

RMT-8HDS REMOTE CONTROL INSTALLATION

1. Remove battery cover from the back of the RMT-8HDS-IR remote.

2. Verify that dip switches 1 & 2 are in the down (OFF) position.

3. Insert the battery, hold the battery so that you can see the positive side facing up. The side that is not marked must be facing down.

4. Test the RMT-8HDS-IR remote by pressing ONLY one button at a time. The indicator light on the remote will flash once each time you press a button. WARNING: Do not press multiple buttons simultaneously and do NOT press buttons rapidly. These actions will cause the remote to reset and steps 1-4 will have to be repeated.

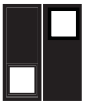
Note: The RMT-8HDS-IR ships with two batteries. One battery is required for operation, the second battery is complimentary.

The following are the dip switch combinations that correspond to the Remote Code menu option on the HDMI to HDSDI Scaler (Please see Menu Functions section for more information):

Remote Channel 0:

Remote Channel 1:

Remote Channel 2:



Remote Channel 3:

RS-232 INTERFACE / FIRMWARE UPDATE PROCEDURE

The HDMI1.3 to 3GSDI Scaler can be controlled via IR remote, the RS-232 serial port, and the USB port. For USB control, drivers must be installed first. The USB port is seen as a virtual COM port inside Windows™. Firmware updates may be performed through the USB port only (not the RS-232 port). Please visit the download section on our website for firmware updates and information on how to control this unit using RS-232 protocols. This web address (URL) has links to the necessary documents and files:

http://www.gefen.com/kvm/support/download.jsp

SPECIFICATIONS

Input Video Bandwidth.....225 MHz

Output Video Bandwidth.....2 x 3.0 Gbps

Maximum Input Resolution.....2048x1080

Maximum Output Resolution..... 2048x1080

HDMI Connector.....type A 19 pin female

SDI/HDSDI Connector.....BNC female

Data Port.....Serial RS-232 / USB

Power Supply.....5V DC

Power Consumption.....20 watts (Max.)

Dimensions.....8.25”W x 1.75”H x 7.5”H

Shipping Weight.....5 lbs.

WARRANTY

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from Gefen.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, please visit Gefen's Warranty web page at http://www.gefen.com/kvm/aboutus/warranty.jsp

PRODUCT REGISTRATION

Please register your product online by visiting Gefen's web site at http://www.gefen.com/kvm/Registry/Registration.jsp

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20600 Nordhoff St., Chatsworth CA 91311

1-800-545-6900 818-772-9100 fax: 818-772-9120

www.gefen.com support@gefen.com